TECH TALK

#11

VOLUME TWO

Published monthly by CADCO for our friends in the CATV Industry

CADCO COMMENT

This issue of TECH TALK is a little out of the ordinary; even for us. It is basically a catalogue.

But not entirely ... a catalogue.

It is also a progress report on a small Oklahoma company that recognized a need, and then moved ahead to fill that need.

Just over one year ago CADCO accepted the challenge of specifying and building one complete cable system. A small cable system of approximately 9 miles of strand in Medford, Oklahoma (population 1304 people). In the 13 months since construction began on Medford, more than two-dozen other all-CADCO systems have been built, or are now being built. Most are small; three going into Kansas right now average under 5 strand miles in length. A few are larger; 30-50 miles. One is, by our standards, large; approximately 90 strand miles in length.

All CADCO systems built and designed to date have several things in common. One of these is cost-per-mile of electronics. The average CADCO plant runs $589.00 per mile for active electronics. The average CADCO plant runs under $2700.00 per mile installed, with labor, passives (including DT's) and labor.

No idle claims here .... just simple facts that we are proud of, and work constantly to improve upon.

The CADCO dedication to the smallish-CATV system is complete. From the design of the head end, to the design of the $45.00 CADCO model CDC-5 economy line extender. From the initial preparation of the FCC Certificate of Compliance application (our staff prepared 23 in May alone) to the structuring of the debt structure and loan arrangements; everything is geared to the small CATV system, and making the system pay for itself and profitable in a reasonable period of time.

The typical CADCO first-time customer needs plenty of assistance and a bushel basket of answers; straight answers. And the typical first-time CADCO customer comes back for his next system(s). Our first system-customer, Gene Kretchmar of Medford, Oklahoma is now busy with his second system. A third is on the horizon. Gene's background is that of a wheat farmer / rancher in Oklahoma's grain belt. But he recognized that his town of 450 homes needed better television; and he came to CADCO for assistance to put it in. And unlike his once-per-annum wheat crop yield, his CATV system now yields 12 crops per year! At the end of 60 days, Gene had 63% of the homes in Medford on his nine channel system.

CATV systems can and are being built to serve America's smaller communities. And they can be profitably installed and profitably operated if you use good judgement and careful financial planning from tower to tap.

Elsewhere in this issue of TECH TALK you will find a report on the first of the CADCO initiated FCC Cable Bureau / Small System Operator meetings. We think you will find it interesting reading.

Oh yes ... keep this issue of TECH TALK handy; it is a catalogue!

Brazos Valley Cablevision, Inc.

SERVING THE CITIES OF
FRANKLIN • CALVERT • BREMOND • GROESBECK • MART

Home Office: 714 Main Street
Calvert, Texas 77837

P. O. Box 715 Telephone (713) 364-2780

June 01, 1973

Mr. Robert B. Cooper,Jr.
President
CADCO,INC.
P.O. Box 28904
Oklahoma City, Oklahoma 73118

Dear Bob:

Last September I came to you with a request for a bid to provide the materials and some manpower to build three small CATV plants in Calvert, Bremond, and Franklin, Texas. On October 22nd, after your people had run three weeks of exhaustive on-site antenna surveys for the three proposed head ends, and all of the numbers were in, we asked you for a formal bid and some assistance in finding financing for the project.

By November 10th you had found two approved sources of money for us, and your maps, head end layouts and bids were complete. On November 11th we signed a contract with CADCO, and on November 15th construction began on the three head ends and plants.

Our goal was a firm December 31st (or earlier) turn on; six short weeks away. And son-of-a-gun, you people made it with seven hours to spare!

I've said it before to you in person, but I wanted to take this opportunity to put it in writing; CADCO put us into the CATV business. They did it quickly, and professionally. And at a cost figure that I still do not believe. We are so delighted with your equipment, and your johnny-on-the-spot back up services when we need help that I am herein submitting our order for one complete bill of materials CATV system for Groesbeck, Texas; our fourth and newest plant.

If there was ever a right company with the right people at the right time, CADCO is it. There are still hundreds, perhaps thousands of small town CATV plants to be built, and I for one hope CADCO builds them all. The TV viewers of this country will be the better for it!

Keep up the great work on our behalf.

Sincerely yours,

BRAZOS VALLEY CABLEVISION,INC.

RMStice

Raymond M. Stice
Vice President

rms/kht

OUT-IN-FRONT

TONY CAVENDAR ... FCC Cable Bureau Attorney addresses the Little Rock crowd of 61 CATV operators at the first of twelve FCC CABLE BUREAU / SMALL CATV OPERATOR regional meetings held June 4th. Operators from Missouri, Arkansas, Kansas, Oklahoma, Louisiana and Tennessee attended at the CADCO hosted meeting. For the full story and a listing of additional June/July meetings, see pages 35 and 37 here.

CONTENTS - This Issue

This issue of TECH TALK is primarily a catalogue of the major CATV products currently produced by CADCO. As is our habit, as new products, services or techniques become available, they will be discussed in future issues of TECH TALK.

THE CATV HEAD END ... *A PLACE TO START* ..... Page 3
IPA-O AMPLIFILTERS ... *A BETTER VHF PRE-AMPLIFIER* 4
IPA-O AMPLIFILTERS ... *AND, A BETTER UHF PRE-AMPLIFIER* 5
IPA-PRS AMPLIFIER ... *AN AMPLIFIED BANDPASS FILTER YET* 6

FILTERING ... *THE CLEAN UP PROCESS* 7
ISC-BPF ... *A BETTER VHF BANDPASS FILTER* 8
ISC-BPF ... *A BETTER UHF BANDPASS FILTER* 9

SIGNAL PROCESSING ... *WHAT YOU SEE IS WHAT YOU SELL* 10
IPA-STRIP PROCESSOR ... *IT COSTS LESS AND WORKS BETTER* 11

TURN KEY HEAD ENDS ... *PERFORMANCE IS THE PROOF* 14

THE EMERGENCY ALERT ... *NOW HEAR THIS* 15
CEAS - CIVIL EMERGENCY ALERT SYSTEM ... *TORNADOS ARE NO JOKE*.. 16
CEAS - INTERFACE SYNTHESIZER ... *HELP FOR CHANNEL COMMANDERS*.. 17

SPECIALIZED HEAD END PROBLEMS ... *PROFESSIONAL IS BEST* 18
IPA-AGC ... *OUTPUT LIMITED (AGC) PRE-AMPLIFIERS* 19
IPA-FM PROCESSING EQUIPMENT ... *WHAT YOU HEAR IS WHAT YOU SELL* 20

CUSTOM ANTENNA SYSTEMS ... *WOULD YOU BELIEVE 64 YAGIS STACKED?* 21

THE CATV PLANT ... *COST PER MILE IS IMPORTANT* 22
... FOR SMALL TOWNS ... *$600.00 PER MILE IS GOOD* 23

CDC-2 ... *MAINLINE TRUNK AMPLIFIER* 24
CDC-3 ... *MAINLINE TRUNK/BRIDGER* 25
CDC-4 ... *TEMP COMPENSATED LINE EXTENDER* 26
CDC-5 ... *ECONOMY LINE EXTENDER* 27
CDC-6 ... *MID SPAN (INTERMEDIATE) BRIDGER*..... 28
IPS-2W/IPS-3W ... *HALF, AND HALF AGAIN* 29
CDC-1 ... *AGC WITH DUAL PILOT CARRIERS* 30
IPA-PCG-2 ... *THE PILOT CARRIER(S)* 31

PRICING ... *WHAT YOU PAY IS WHAT WE GET* 32
CADCO DISTRIBUTORS ... *BETTER THEIR WAREHOUSE THAN OURS* 33
CURRENT FCC TV STATION NEWS ... *MORE TV STATIONS FOR ALL* 34

LITTLE ROCK FCC/CATV OPERATORS MEETING ... *FIVE FINE HOURS* ... 35
UP-COMING JUNE/JULY FCC/CATV OPERATOR MEETINGS ... *A SCHEDULE*. 37

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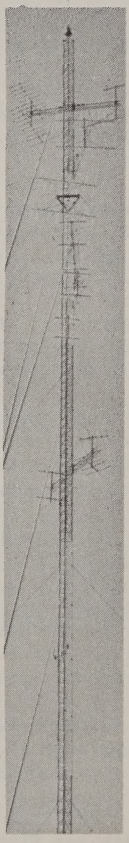
THE HEAD END

The head end ... the most crucial and critical segment of any CATV system. The quality of the CATV channels is set once and forever by the equipment at the head end. This is no place to cut corners, because to do so has an immediate and direct effect on the **marketability** of the system's service. Very often the difference between a 40% saturation at the end of one year and 60% saturation at the end of one year can be traced to the quality (and quanity) of cable service channels.

Everything about the head end is important. Even the selection of the site itself, which in many situations, is often the most critical of all.

The tower is more than an instrument to hold up some costly antennas. It is your **one link** to the outside world of TV channels that you offer on your cable; and home viewers cannot receive on their rooftop antennas. It must be tall enough, and strong enough to do the job intended for as long as you or the town will be there.



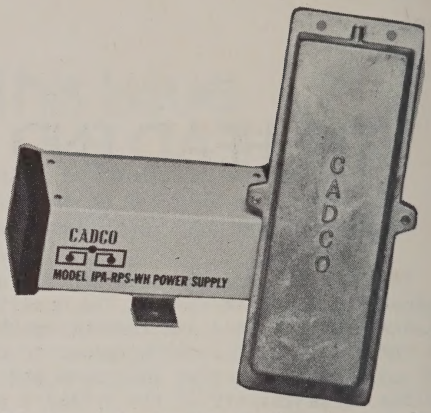
The antennas ... the reason that you and your cable system exist at all. They must be carefully chosen to eliminate co-channel interference and man made noise interference. And as CADCO system owners will confirm, it is not necessarily the antenna brand or model that counts; it is how they are installed and phased together that counts.

The pre-amplifiers ... more than a voltage gain device. At CADCO, they are extremely sensitive and extremely selective pre-selectors that filter out interference and reduce or eliminate noise.

The signal processing system ... is your automatic control package to eliminate adjacent channel interference, to control fading input signals and to allow you to inter-face into your CATV system all of the present and future services that CATV can offer.

At CADCO, we **major** in CATV head end design. For every size system, including Vancouver!

IPA-O AMPLIFILTERS (pre-amps) VHF



There are nearly 2,000 CADCO model IPA AmpliFilters (pre-amps) in use today in the United States in Canada. And all of these have been put into service in the past 18 months.

There is no finer CATV pre-amplifier in the industry today.

Check our noise figure spec: 1.5 db average, any channel from 2-13.

Check our gain spec: 29 db average for any low band unit; 31 db for any high band unit.

Check our overload spec: +57 dbmv output capable before there is 1% sync compression.

Check our adjacent channel overload spec: +30 dbmv on one adjacent channel at the input and no overload; +26 dbmv on two adjacent channels at the input and no overload.

And there is much more. A cast aluminum housing that is RF and weather tight; sealed with a gasket for maximum protection against rain and dirt.

An impedance-matched companion powwer supply for duplex (downline) cable powering; zener regulated inside of the pre-amp itself so that voltage drops through very long downlines will not effect the performance of the pre-amp itself.

Siemens lightning protection, and thryistor AC powering protection as low cost options.

"F" fittings, or your choice of almost any fitting on the market today.

If your antenna level signals are in the -35dbmv to -10 dbmv range, there is an IPA-O AmpliFilter in your picture!

GAIN ... Channels 2-6 (single channel)
(1) IPA-LB22/O ..... 20 db
(2) IPA-LB28/O ..... 28 db
Channels 7-13 (single channel)
(3) IPA-HB28/O ..... 28 db
NOISE FIGURE ... 1.5 db typical
(+/- 0.5 db maximum)
INPUT MATCH ... 12/14 db typical
OUTPUT MATCH ... 14/16 db typical
GAIN/BANDWIDTH PRODUCT ... 4.5 MHz
GAIN FLATNESS ... +/- 0.2 db typical
OUTPUT CAPABILITY ... + 57 dbmv
OVERLOAD RESISTANCE ... +30 dbmv,1 Ch.
+26 dbmv,2 Ch.
POWERING ... Companion 110-120 VAC zener regulated with cable-duplex powering
INPUT/OUTPUT ... 75 ohms, "F" fitting standard; others optional
HOUSING ... Cast aluminum, gasket sealed
MOUNTING ... At antenna on tower leg with 1.75" stainless clamps.

PRICING ... IPA-LB22/O $195.00
IPA-LB28/O $235.00
IPA-HB28/O $215.00

AVAILABILITY ... from stock
SHIPPING VIA ... parcel cost or air parcel post

IPA-O AMPLIFILTERS (pre-amps) UHF

The UHF version of the IPA-O series of pre-amplifiers is everything that the better known and more widely used VHF series is.

Two versions are available; one with moderate noise figure and good gain in numbers; and a super-deluxe version with an ultra-low noise figure and higher gain.

SPECS

GAIN ... IPA-UHF20/O ..... 24 db
IPA-UHF22LN/O ..... 26 db

NOISE FIGURE ...
IPA-UHF20/O ..... 4.5/6.5 db
IPA-UHF22LN/O ..... 2.4/3.0 db

GAIN/BANDWIDTH PRODUCT ...
IPA-UHF20/O ..... 10 MHz
IPA-UHF22LN/O ..... 7 MHz

GAIN FLATNESS ...
IPA-UHF20/O ..... +/- 0.1 db
IPA-UHF22LN/O ..... +/- 0.2 db

OUTPUT CAPABILITY ... +52 dbmv, 1% sync clipping

POWERING ... Companion 110-120 VAC zener regulated with cable duplex powering

INPUT/OUTPUT ... 75 ohms, "F" standard; others optional

HOUSING ... Cast aluminum, gasket sealed

MOUNTING .. At antenna on tower leg with 1.75" stainless clamps

PRICING ... IPA-UHF20/O $275.00
IPA-UHF22LN/O .. $395.00

AVAILABILITY ... 7-10 days on IPA-UHF 20/O; 15-25 days on IPA-UHF22LN/O

SHIPPING VIA ... parcel post, or air parcel post

Like the VHF member of this state-of-the-art family, the UHF unit has its own companion impedance-matched power supply (this is VERY important at UHF). And also like the VHF member of the family, every unit shipped out includes a full set of technical performance specifications for that one unit, on a special data form that is completed by the alignment technician as he "tweaks" the unit up for optimum performance.

This includes the actual noise-figure of the unit, the gain, and a scope-screen photo of the bandpass response of the unit shipped to you, with 1 MHz markers.

The moderate gain/moderate noise figure unit is just the unit for inputs down as low as -18/20 dbmv from the antenna, with downline losses of 4-5 db.

The ultra low noise/high gain unit is for you operators with really tough input signal level problems; such as -30 dbmv (or worse) at UHF. That 2.4-3.0 db noise figure really makes a difference when you inputs are way down there.

UHF low noise units (the IPA-UHF 22LN/O) is also available with slightly higher noise figures with preselector filtering ahead of the low noise first rf stage; for two-away and immediately-adjacent problems.

There are no finer UHF pre-amps on the CATV market today.

IPA-PRS pre-strip AMPLIFILTER

Low-noise pre-amplification is not always what you need most; between your antenna and your signal processing equipment.

Often, with inputs of -10 dbmv to +5 dbmv or so, what you need most is some additional voltage gain and some filtering.

The CADCO model IPA-PRS is just the unit for this job.

Typical situation: A signal processor that requires an average input of +10 dbmv. Your antenna level on your desired station at the input to the processor is -10 dbmv. You need a 20 db voltage gain. **The IPA-PRS has it.**

Typical situation: A signal processor (or BT-strip) that requires +10 dbmv input. Your antenna level on your desired station is between -10 dbmv and +5 dbmv; and, you have one (or two) adjacent channel signals that run someplace between -15 dbmv and +10 dbmv. You need voltage gain on the desired channel, and, filtering on the one (or two) non-desired adjacent channels.

The IPA-PRS has it. Because the CADCO model IPA-PRS is the CATV industry's ONLY amplified-filter. It even has a patent; it is so unique.

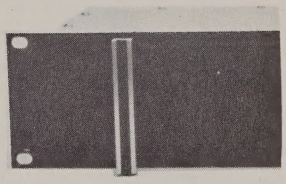
The IPA-PRS has a patented etched-inductor interdigital bandpass filter in the front end; this cleans up the passband so that only the desired channel gets through. The etched inductor filter is followed by three or four stages of very low-noise J-FET amplification for gain and noise figure. Even with the interdigital bandpass filter ahead of the low noise J-FET amplifier stages, this unit has a noise figure equal to other straight pre-amplifiers!

The IPA-PRS is rack mounting, with its own self-contained zener supply. And it has a built-in 0-9 db linear output attenuator for exact gain.

SPECS

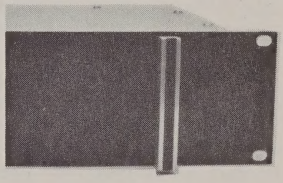
GAIN ... 22 db maximum with gain control wide open
GAIN CONTROL RANGE ... Output has 0-9 db linear level adjust
NOISE FIGURE ... channels 2-6: 5.0 db maximum; 3.5 db typical
channels 7-13: 6.5 db maximum; 5.5 db typical
MAXIMUM INPUT LEVEL ... +32 dbmv
MAXIMUM OUTPUT LEVEL ... +57 dbmv
ADJACENT CHANNEL REJECTION ...
(1) Channels 2-6
(A) Lower adj. aural and upper adj. visual: -22 db
(B) Lower adj. visual and upper adj. aural: -34 db
(2) Channels 7-13
(A) Lower adj. aural and upper adj. visual: - 8 db
(B) Lower adj. visual and upper adj. aural: -26 db
INPUT/OUTPUT MATCH ... 14 db typical
INPUT/OUTPUT ... 75 ohms, "F"
POWERING ... 110-120 VAC, zener regulated; fused
MOUNTING ... Standard rack, 3.5" high
PRICING ... $145.00 each
SHIPPING VIA ... parcel post

FILTERING



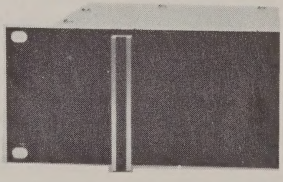
Filtering is perhaps the least-understood head end requirement in CATV today. Most CATV operators understand the basic premise of filtering; when you have more signals than merely the desired one coming into, or going out of a piece of head end equipment, and the non-desired signal(s) are interfering with the desired signal(s); you install a filter. Or a trap.

A quality filter has a trap or two included. A quality filter will pass-through the desired channel without introducing group-delay on the desired channel signal. And that is a good deal because group-delay ends up messing the color around.

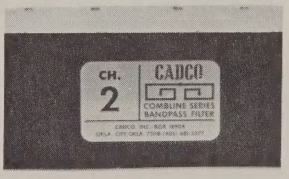


CADCO started out building filters. We have a couple of patents on filters. And we use filters extensively in everything from our IPA/O low noise pre-amplifiers to our IPA-STRIP signal processor. And even in our CDC-4 line extender.

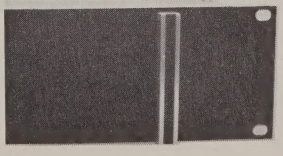
CADCO is very filter conscious. And we manufacture the best bandpass filters in CATV today. The COMBLINE series of bandpass filters.



They work so well that you can take a CADCO ISC-BPF (Combline) filter to a location where you are only a few miles from a local full power TV station. And install the ISC-BPF ahead of a standard straight-off-the-floor TV receiver, on an adjacent channel to the local TV station.

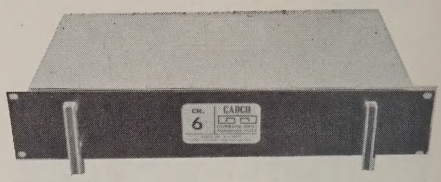


Without the filter, the adjacent channel to the local channel is completed overloaded by the local signal. With the filter, the adjacent channel cleans up and fringe stations are suddenly visible.



In the CATV head end the principle is the same. An ISC-BPF bandpass filter cleans out interference from strong, nearby stations so that you can use more distant channels on your system. CADCO builds filters for VHF, UHF and mid and super band channels.

ISC-BPF COMBLINE SERIES BANDPASS FILTERS – VHF



The CADCO model ISC-BPF adapts to the CATV industry a technique usually found only in high performance, high cost UHF and microwave circuits. This is the combline technique which replaces the usual air-coil or form-wound coils in traditional bandpass filters with capacitively shortened resonant 1/4 wave lines, suspended between two ground plane surfaces.

In plain English, the ISC-BPF Combline series of bandpass filters are stable, and precise because there are no temperature-sensitive elements to react to changes in ambient air temperature or air-humidity content.

CADCO model ISC-BPF bandpass filters are so immune to changes in temperature and humidity that many operators have mounted them in special housings at the top of their towers ahead of pre-amplifiers!

CADCO model ISC-BPF bandpass filters are rack mounting, 3.5 inches tall. All fittings are on the rear.

Every filter has an alignment data sheet filled out by the alignment tech at the time of alignment. The user knows the exact parameters of the filter from this alignment data sheet.

CADCO is especially proud of the adjacent channel (nearest carrier) characteristics of the ISC-BPF. On low band, the two nearest carriers are down not less than -26 db from the desired channel carriers. And because of the exclusive combline design, group delay is the lowest in the CATV industry today.

CADCO filters are just-the-ticket to go ahead of pre-amps, processors, BT strips, and after strips and hetrodyne signal processors. They are also available for mid-band and some super-band frequencies. An optional model has a built-in adjustable audio carrier trap that allows you to set your aural carrier down ahead of a BT strip without an external trap.

SPECS

THRU LOSS ...
(1) Low band - 1.0 db typ.
(2) High band- 3.5 db typ.
BANDWIDTH ...4.5 MHz typical (*)
PASSBAND RESPONSE FLATNESS ...
(1) Low band - +/- 0.2 db
(2) High band - +/- 0.3 db
INPUT/OUTPUT MATCH ...16 db typical
LOWER ADJ. CARRIER REJECTION ...
(1) Low band - 26 db typ.
(2) High band - 22 db typ.
UPPER ADJ. CARRIER REJECTION ...
(1) Low band - 26 db typ.
(2) High band - 22 db typ.
MOUNTING ... Rack, 3.5 " high
CONNECTORS ... 75 ohm "F"
DEPTH BEHIND PANEL ...
(1) Low band - 9.25 "
(2) High band - 5.84 "
OPTIONAL SOUND TRAP MODELS ...
(1) Low band, user adjustable single knob trap runs sound down 0-17 db reference video
(2) High band, 0-15 db
PRICING ...
(1) ISC-BPF LB or ISC-BPF-HB (specify channel) $150.00
(2) TRAP models - $180.00
DELIVERY ... 7 to 10 days
SHIPPING VIA ... single units PP or UPS; multiples UPS,truck

(* - 6.0 MHz optionally available)

ISC-BPF COMBLINE SERIES BANDPASS FILTERS – UHF

A UHF version of the ISC-BPF has recently been introduced by CADCO. This is a rack mounting (5.25 inches tall) unit of true interdigital design (ie. no capacitive loading on the resonant 1/4 wave lines).

At UHF, the filtering problem becomes especially acute since it is increasingly more difficult to obtain circuit "Q" at the higher frequencies. And circuit "Q" effects the ability to obtain high selectivity and rejection of close-in adjacent channel carriers.

The UHF series of ISC filters are designed primarily for rejection of non-desired stations operating more than one adjacent channel away. That is, if your desired channel is 31, and you have a nearby channel 29 or 33, the ISC-BPF-UHF will probably handle the job for you.

Every effort has been made to keep the filter through-loss on the desired channel at a minimum. This is important since any filter loss at all, especially when the filter must be placed ahead of a low noise pre-amplifier, merely increases the effective noise figure of the pre-amplifier by the amount of the BPF through loss. At UHF, where distant stations often are very weak, any unnecessary increase in the noise figure of the pre-amplifier (such as due to filter losses ahead of the pre-amp) degrades the signal to noise ratio of the signal being received.

The typical uses for the ISC-BPF-UHF include:

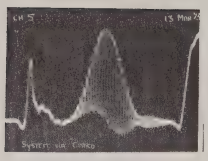
(1) Placement ahead of a UHF to VHF converter in high signal areas to eliminate cross-mod in the converter;

(2) Placement ahead of a UHF preamplifier, or UHF to VHF (or i.f.) tuner to eliminate cross mod.

SPECS

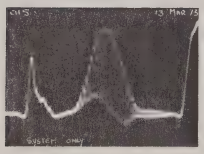
THRU LOSS ... 0.7 db for third-away adjacent trapping; 1.4 db for second-away adjacent trapping
BANDWIDTH ... 6.0 MHz typical
PASSBAND RESPONSE FLATNESS ... +/- 0.1 db typical
INPUT/OUTPUT MATCH ... 16 db typical
ADJACENT CHANNEL REJECTION ...
(1) two nearest adjacent carriers - 4 db
(2) lower visual and upper aural adjacent carriers - 10 db
(3) second adjacent channels, nearest carriers -18 db
(4) second adjacent channels, furthest carriers -24 db
MOUNTING ... Rack, 5.25" tall panel
CONNECTORS ... 75 ohm, "F"
DEPTH BEHIND PANEL ... 3.5 inches
PRICING ... $150.00
DELIVERY ... All ISC-BPF-UHF are on a custom order basis; normal delivery is 20-30 days from receipt of order
SHIPPING VIA ... parcel post or UPS

SIGNAL PRCESSING



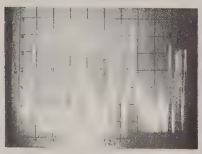
The quality of the signal that you put **onto** the cable is, in the final analysis, what you have to sell. A CATV plant problem (incorrect spacing, wrong amplifier) can usually be corrected quickly, and without too much fuss or bother.

But ... if you lay out the head end incorrectly, or add new channels **incorrectly**, the effects are felt throughout the entire plant.

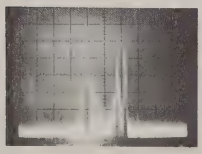


CADCO's approach to signal processing is unique. We process on-channel without any hetrodyning. As exhaustive tests by Vancouver Cablevision demonstrated (see **TECH TALK** Volume 2, Number 4) in the pages of Tech Talk, there is a substantial difference between CADCO's unique on-channel processing system and hetrodyne signal processing.

The name of the game .... first of all, is picture quality. The Vancouver Cablevision tests were the proof that picture-for-picture, the CADCO model IPA-STRIP is the hands down winner.



And the name of the game ... second of all ... is cost-per-channel at the head end. Anyone can spend enough money to get any signal perfect ... if cost is no factor whatsoever.

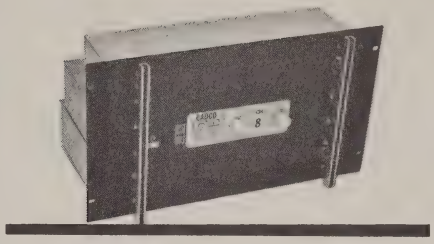


The CADCO on-channel IPA-STRIP basic processing system costs under $500.00 per channel. The super-deluxe version with visual carrier standby is $585.00. This is approximately 1/2 the price of the best selling major brand hetrodyne signal processor.

So if you get **better quality pictures** for one half the price, doesn't it make good sense that you are both money-saved and subscribers ahead with a CADCO model IPA STRIP signal processing system?

An all-CADCO head end is a thing of beauty. A minimum of operator controls and two-knob operation (output level and aural carrier level). It is all solid state and the state is 1973 state-of-the-art all the way.

IPA-STRIP ON-CHANNEL SIGNAL PROCESSOR

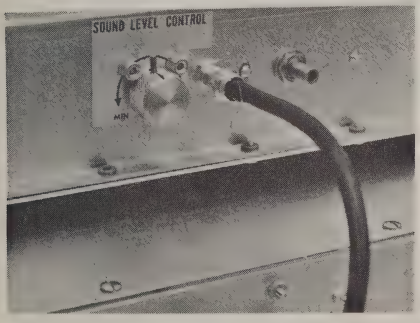


The CADCO model IPA-STRIP has been designed with every size CATV system in mind. However, the fact that it does produce better-quality pictures than any other signal processing system, and that it is less expensive than any hetrodyne signal processing system makes it a natural for even the smallest of the small systems.

Here is how the model IPA-STRIP works.

(1) At the input to the unit, the antenna delivered signals are fed through a CADCO model ISC-BPF combline bandpass filter (see page 8 here). This highly selective bandpass filter removes all of the non-desired channel energy including the two immediately adjacent carriers on the two immediately adjacent channels.

(2) From the output of the input bandpass filter, the desired channel signal is now routed through a special broadband amplifier designed around a newly available chip-amplifier from Amperex. The gain of this stage of the unit is flat between 50 and 900 MHz to within 0.2 db; and within a single 6.0 MHz wide VHF TV channel, the gain is flat to within 0.01 db. This is very important since this extreme flatness with non-tuned stages allows gain without the introduction of phase distortion and group delay; both of which can and do mess up color.



The "gain block" also has a newly developed tunnel diode AGC system that reacts so quickly and so accurately to changes as great as +/- 20 db that you have to see it demonstrated to believe it. This is a first-rate AGC!

Also included in the gain block is a signal sensing circuit and a carrier control (for output shutdown when the input signal drops below the pre-set value) switch.

The output stage in the strip is a broadly tuned PT3570 TRW transistor; the same PT3570 that the industry (CADCO included) utilizes in line extender amplifiers.

(3) From the output of the gain block the signal is routed through yet one more CADCO model ISC-BPF combline bandpass filter. This filter, virtually identical to the input filter, further sharpens the selectivity and skirts on the single-channel signal processor; insuring that no adjacent channel energy gets into the system through the IPA-STRIP signal processor unit.

So we have bandpass shaping (in the input and output combline bandpass filters), gain (in the chip amp

and PT3570 output stage), AGC and signal sensing functions.

And then there is on-channel sound carrier control. Most systems operate their channels with the aural carrier turned-down by -12 to -17 db; reference the visual carrier level on the system.

Back on the input model ISC-BPF combline bandpass filter, CADCO has installed something known as an **aperture coupled** sound trap. Basically, this is a very clever way to place a very deep (up to 25 db) notch on just the sound carrier, and not even budge the critical color sub-carrier region only .92 MHz lower in frequency!

So the CADCO model IPA-STRIP has a sound carrier control built into the input combline bandpass filter; you simply turn a single knob until the sound carrier is down the number of db that you want to run it down.

And just to be sure that you do not make a mistake in setting the sound carrier control and get into the color region (and therefore upset the color phase), there is a mechanical stop or "peg" on the shaft that makes it impossible to tune into the color region with the sound control.

This is the basic model **IPA-STRIP**. There is one further refinement available for the unit; a standby visual carrier.

As an optional extra, rather than shut the IPA-STRIP off when the input signal goes away(or fades way down), a standby carrier comes on; on the visual carrier frequency. This is a must for systems that have plant AGC that is referenced to one or more carriers on the system. This is also a must for systems that install the CADCO model CEAS (Civil Emergency Alert System); described on pages 15-17 in this issue of TECH TALK.

Is there anything that the IPA-STRIP

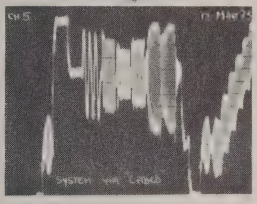
SPECS

GAIN (operational)... 57 db
OUTPUT CAPABILITY ...+55 dbmv
NOISE FIGURE (maximum) ... (a)
(1) Low band .....8 db
(2) High band .....10 db
RECOMMENDED INPUT LEVEL ...
for middle of 40 db AGC window, +10 dbmv
AGC RANGE (for +/- 1 db output change)
... +/- 20 db (from -10 to +30)
TOTAL AGC WINDOW WIDTH ... 40 db
MANUAL GAIN CONTROL RANGE ... 40 db
OUTPUT LEVEL CONTROLS ...
0-9 db linear front panel pot; 0,3,6,9,12 db plug in pads
INPUT LEVEL CONTROLS ...
0,3,6,9,12 db plug in pads
TEST POINTS ...
Input to AGC'd gain block;-20 db
Output to AGC'd gain block;-20db
INPUT/OUTPUT MATCH ... 16 db typical
SOUND CARRIER CONTROL ... 0-17 db reference visual carrier level; single knob control
OUTPUT SHUT DOWN (carrier control)...
(1) Minimum input,shut off, -20 dbmv
(2) Minimum input, turn on, -15 dbmv
(3) Time delay, off; 15 seconds
(4) Time delay, on; 5 seconds(b)
ADJACENT CHANNEL REJECTION ...
(1) Low band,nearest adj. -55db
(2) High band,nearest adj. -30 db
POWERING ... 110-120 VAC, zener,surge, thyrector protected
INSTALLATION ... Rack, 10.5" high
INPUT/OUTPUT ... 75 ohms, "F" series
TEMPERATURE INSTABILITY ...
No measureable operational changes from -40 F to +140 F
CONTROLS ...
(1) Front Panel ... ON/OFF; Manual or AGC select; 0-9 db output level adjust
(2) Rear Apron ... Sound carrier level set, plug-in 0,3,6,9,12 db input/output pads
OPTIONS ... Civil Emergency Alert System (see page 16 here); Visual standby carrier
PRICING ... $480.00 per channel; $585.00 with standby carrier

IPA-STRIP VANCOUVER TEST RESULTS

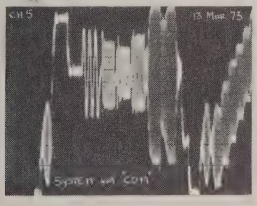
Mr. Brian Bethel of Vancouver (B. C.) Cablevision performed an exacting series of test on the CADCO model IPA-STRIP in February/March 1973. A portion of these test results are shown here (for full test results see TECH TALK Volume 2, No. 4, page 5).

In the multi-burst test sequence a multi-burst generator is connected to a modulator. The modulator feeds (thru pads) a demodulator and the multi-burst pattern is photographed for standard reference.



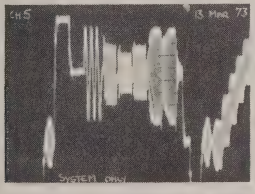
TEST SET UP MULTI-BURST REFERENCE

Next the same multi-burst and modulator set up, with demodulator, are separated by a freshly aligned major brand hetrodyne processor.



TEST THROUGH HETRODYNE UNIT

Finally the same multi-burst and modulator with demodulator are separated by a CADCO IPA-STRIP.



TEST THROUGH CADCO IPA-STRIP

won't do?

YES ... it is not the head end unit to use if you have a VHF to VHF channel conversion to make. (UHF to VHF is fine since this is usually an outboard conversion anyhow.)

As the data to the left shows, the CADCO model IPA-STRIP was carefully evaluated by the world's largest CATV system; Cablevision in Vancouver,B.C. And after careful analysis of multi-burst tests and 12-½ T tests, the amount of waveform distortion in the CADCO model IPA-STRIP was found to be significantly less than with a major brand hetrodyne channel processor.

The CADCO model IPA-STRIP presently is in its 10th month of production. Hundreds of units are in use; many of them in 9-12 channel head ends designed, built, and installed by CADCO engineering personnel.The IPA-STRIP is not a static product. Like the famous little German car, CADCO is constantly re-evaluating every part in the IPA-STRIP, and making an already great, field proven unit better.

The concept that produced the IPA STRIP is part of the entire operational philosophy at CADCO. A CATV system, of any size (from 200 to 200,000 subscribers) must have better looking cable pictures than the subscribers can receive on their own antennas, or the cable company will not achieve its desired level of subscriber saturation. For years the smaller systems have had to settle for patchwork pieces of equipment; a so-called single channel strip amp from here, a bandpass filter from there, a tuneable (sound) trap from another place ... and so on.

Individually these were (and are) very serviceable pieces of equipment. Lashed together in the field, without adequate test equipment ... they are something else. Now CADCO has put it all together with 1973 know-how!

TURNKEY HEAD ENDS

A high percentage of the CADCO systems being sold and installed these days include CADCO planned, engineered and installed turn key head ends.

A CADCO turn key head end consists of as much or as little as you ... the buyer ... desires.

It often includes:

(A) the tower
(B) the antennas
(C) the down lines and pre-amps
(D) the UHF to VHF converters (as required)
(E) the signal processors
(F) racking, combining of channels, head end output test point and trunk output
(G) any support equipment such as a weather channel, modulator, FM processing equipment, and so on.

In a typical situation, the buyer comes to CADCO with a list of channels he wishes to carry, and a proposed head end location. CADCO's field engineering crew determines the antennas required, the precise antenna configuration, the tower height and antenna placement pattern, and all of the equipment required.

A bid is submitted to the buyer that calls for everything supplied and installed.

If the bid is accepted, CADCO becomes totally responsible for the entire project. And this includes installation of the actual head end equipment and FCC certification that the head end, as installed, fully meets or exceeds the applicable sections of Part 76.

There are several good reasons why this makes the best head end package in CATV today. They are:

(1) RESPONSIBILITY ... CADCO takes full responsibility for the actual construction and performance of the total head end; from antennas and co-channel to output level specification. The antenna and tower sub-contractors are responsible to CADCO; and CADCO is responsible to you, the buyer.

(2) COST ... Everyone knows that antenna and tower prices are inflated for MSO discounts. CADCO buys at the OEM (original equipment manufacturer) discount, which is always at least equal to the MSO discount.

And then ... are you ready for this ... we re-sell the antennas and the tower to the buyer at our cost!

This results in savings of 10-20 % on towers and antennas; savings which the system buyer realizes.

This program may not make much sense to our fellow equipment suppliers, but it sure makes sense to our customers!

THE EMERGENCY ALERT

The CADCO **CEAS** (Civil Emergency Alert System) is the CATV industry's fulfillment of a real need that virtually every community has; instantaneous alerting of every cable connected home in the community of an emergency.

The original **CEAS** package was developed to function with the CADCO model IPA-STRIP system. Through the CEAS system, every home in town, on the cable, receives emergency messages from the local police, fire or CD office. All homes are alerted at the same time ... regardless of the cable channel their receiver(s) happens to be tuned to.

This system is now installed and operating in several mid-western communities.

Now CADCO is able to announce two new exciting additions to the CEAS family.

(1) 12 CHANNEL SYNTHESIZER ... By adding this newly available (we are now quoting mid-August deliveries on the first units) package to the standard **CEAS** package any existing CATV head end can have emergency-alert capabilities. This means that all of those Channel Commander and other head end users out there who have asked for a CEAS package that would work for them can **NOW** get in line for delivery!

(2) EMERGENCY ALERT RECEIVER ... We call this exciting new addition to the CEAS line **EAR** for short. A special **Channel One** fully self-contained receiver responds to the CEAS signal transmitted on the cable system. A full one watt of audio will awaken even the hardiest sleeper and notify him (with the CEAS audio message) that there is an emergency situation. The **EAR** unit can be fed through a two-way splitter and be located in the bedroom for maximum effectiveness. The **EAR** unit provides peace of mind and security even during normal-off TV hours. Even in relatively small quanities, the pricing of the **EAR** is low enough that cable operators can rent it for pennies a day. (Delivery late summer 1973)

CEAS
Civil Emergency
Alert
SYSTEM

The basic CEAS package consists of the following component units:

(1) Transmitter ... the CEAS transmitter is located in some place of central authority in your town. This is usually the police, civil defense,fire or sheriff's office.

The transmitted is inter-connected to the CATV head end through either (A) a leased telephone line, (B) an open circuit (ie. regular) telephone line with dial-in access, or, (C) a two-way radio link through existing (or new) VHF radio facilities.

The transmitter generates audio, and this audio operates the remainder of the system, located at the CATV head end.

(2) Modulator ... the CEAS modulator is installed at the CATV head end where it interfaces with the signal processing equipment (CADCO model IPA STRIP or with the new Synthesizer unit described on the next page for other processing system equipment).

The modulator generates a precise 4.5 MHz audio modulated carrier. The audio for the carrier comes from the CEAS transmitter.

In a CADCO model IPA-STRIP processing system, each processor unit has a built-in standby carrier on the visual carrier frequency.

On command from the CEAS transmitter, the normal TV viewing is interrupted and the standby carriers switch on, on all channels simultaneously.

An aural signal, generated by the CEAS transmitter, sounds a warning. This warning audio is digitally generated and it is so unique that it cannot be mistaken for anything other than an alert.

When the warning audio ceases (15 seconds time) the operator at the CEAS transmitter merely speaks into the telephone instrument handset connected to the CEAS transmitter. Everything the operator says goes out on every TV channel on the system simultaneously.

Every cable TV viewer in town has instant access to any and all emergency warnings and messages.

The operator's audio modulates the 4.5 MHz modulator unit, and this 4.5 MHz audio modulated signal is then mixed with every visual standby carrier on every channel simultaneously. This places an emergency message on every channel on the system.

The basic CEAS package will function with any number of IPA-STRIP signal processors; up to 12.

The transmitter portion of the package may be located at one location, or, there may be numerous transmitter units spread between fire, police, public safety and other agencies. The system is completely flexible to your needs.

The head end located modulator unit has numerous safe guards built in for fault detection; including warning status lights, and a buzzer to warn when the system is "down".

12 Channel CEAS Compatible Synthesizer

Since the CEAS package was first announced, CADCO has received an uncommon amount of mail from CATV system operators who already have a satisfactory head end; but who wished to be able to inter-face the basic CEAS package with their existing head end.

Actually, CADCO has been working in this direction for some time.

And now we are ready to begin accepting orders for the (1) CEAS package, plus, (2) the 12 Channel Synthesizer.

There were two ways to approach inter-facing with an existing head end. One was to require the inter-facing package to wire or plug into your Channel Commander, or whatever head end. There are, however, many different variations of even the basic Channel Commander package; and unless the system operator is intimately familiar with (1) what he actually has, and (2) how to modify it to accept the CEAS inter-face package; we have got problems galore.

So we took the easy way out and developed an inter-face unit that ignores the presence of the existing head end completely.

The **12 Channel Synthesizer** inserts into your head end lash up after your existing head end unit. It is entirely self contained and you can have any garden variety or mixture of existing head end processors; the **12 Channel Synthesizer** does not care.

When the basic CEAS package, including transmitter and head end modulator goes into action, the **12 Channel Synthesizer** switches in visual carriers on each of the channels (1-12) that you have in operation on your system. The regular processing equipment continues to run; only it is no longer tied into the trunk line input from the head end. The **12 Channel Synthesizer** (and its signals) is there in the place of the regular processor signals.

The visual carrier frequencies generated by the **12 Channel Synthesizer** are modulated by the CEAS 4.5 MHz modulator, just as in a CADCO IPA-STRIP head end system. And when the alert period is over, the **12 Channel Synthesizer** switches off and the regular signal processors feed the trunk input once again with normal service.

The **12 Channel Synthesizer** is presently available with from 1 to 12 channels of service. And you pay for what you use (ie. the number of channels your system requires) only.

Please note that because the **12 Channel Synthesizer** works independent of the existing head end, you can use this system of emergency alerting with any single brand or mixture of brands of CATV head end signal processing gear.

The first CEAS package with the **12 Channel Synthesizer** is scheduled for delivery in July (1973). Others will be delivered in August, and by September delivery should be quite routine.

The price of a **CEAS + 12 Channel Synthesizer** is shown on pages 31-32 in this issue of **TECH TALK**.

SPECIALIZED HEAD END PROBEMS

One thing you learn early in the CATV head end supplying game; **no two head ends are exactly alike.** Now that is not your basically profound statement.

So to explain.

Some head ends are carrying mid-band channels. We reacted to that by making available (and now you know) a series of mid-band **IPA-STRIP** signal processors. And we also have a mid-band series of **ISC-BPF** combline bandpass filters.

Some head ends are co-located with some very strong local FM (88-108 MHz) transmitters. We reacted to that by designing a special series of pre-amplifiers (the basic **IPA-LB28 and IPA-HB28** units) with FM stop-band filters ahead of the rf pre-amplifier stages. And that put an end to front end overload from 100 kw FM transmitters only tens of feet away.

Other head ends are located in portions of the USA or Canada where early morning and evening signal levels vary widely; mostly UP. So we designed what is today the CATV industry's only output-limited (ie. AGC'd) preamplifier. If the need for this escapes you, consider yourself lucky; but read the details on page 19 just for the educational benefits it will give you.

Still other head ends have widely scattered antenna pick-up points; some several thousand feet away from the head end equipment "shack". And these head ends required dual pre-amplifiers **in series** just to get the antenna signal through a couple of thousand feet of down cable, and back to the head end. So we modified the popular **IPA-LB28/0** and **IPA-HB28/0** for through powering. More than a few systems have two in series; one has three in series.

Then there was the fellow with a head end on U.S. Forest Service property who had to install his processing equipment in a vault; under ground. That one took some doing because of heat build up and potential dust problems, but we licked that problem too.

So ... bring CADCO your head end problems. If we can't solve it off-the-shelf; we believe CADCO Engineering can!

IPA-AGC OUTPUT-LIMITED Pre-Amplifiers

The IPA-AGC series of pre-amplifiers was designed to solve one very nasty CATV head end problem.

That problem is UP FADES. In many areas of the United States, and a few in Canada, early morning, or evening signal levels sometimes jump up by a great deal more than the 20 db AGC range built into your standard signal processor.

For example ... let's assume you have a -20 dbmv antenna level signal. It swings back and forth by 10-12 db on the average. So you install a 25 db gain pre-amplifier and at the bottom of your downline you typically have a 0 to +10 dbmv signal into your signal processor.

Now the early-morning or evening UP fade comes along and your -20 dbmv antenna level suddenly becomes +5 dbmv; or more.

Your processor will handle an input range of -10 dbmv to +30 dbmv. But when the input rises above +30 dbmv funny things start to happen in the processor. First the picture begins to "bleach out"; the whites turn super-white. Then the sync starts to get the jitters; even though the picture is crystal clear and clean.

Finally, down on your CATV plant, for every 1 db above the maximum + 30 dbmv input that the pre-amped signal builds, the line level on that channel builds by 1 db; until the maximum output capability of the signal processor is reached. If you have a plant AGC that reacts to varying line levels, you now also have plant AGC problems in addition to head end problems.

The CADCO IPA-AGC solves all of this by limiting the output from the pre-amp to the processor to a maximum of +10 dbmv; even for UP fades as great as +50 db! And it works with a CADCO, or anyone else's pre-amp.

SPECS

PACKAGE ... Includes IPA-LB28 or IPA-HB28 pre-amp (antenna mounting) and Rack Mounting AGC'd Limiter Unit;
or ...
Rack Mounting AGC'd Limiter Unit alone

GAIN ... With IPA-LB28 or HB28 - 26 db

NOISE FIGURE ... 1.5 db typical

INPUT/OUTPUT MATCH ... 18 db rtl

AGC LIMIT RANGE ... 50 db full limit range for pre-amp inputs to +20 dbmv (30 db pre-amp gain assumed)

OPERATING VOLTAGE ... 110-120 VAC, zener regulated DC

AGC PORTION TEMP STABILITY ... User set output limit level holds +/- 2.5 db for range + 20 F to + 120 F

CONTROLS ... Power (AC) on/off, Limited output level from + 10 dbmv to + 20 dbmv

ADJACENT CHANNEL OPERATION ... Not recommended for use where lower adjacent aural carrier is within -6 db of desired channel visual level

PRICING ... IPA-LB28 AGC $360.00
IPA-HB28 AGC $360.00
IPA-AGC $175.00

DELIVERY ... 15-20 days

SHIPMENT VIA ... Parcel post or UPS

IPA-FM broadband PROCESSOR

Model IPA-FM22 Broadband Signal Processor is an amplified bandpass filter to handle FM signal processing from a broadband (FM) antenna to the trunk line.

This rack mounting package has 22 db of gain nominally (26 maximum); an input interdigital bandpass filter to process only the 92-108 MHz range (channel 6 aural is -34 db reference the FM passband level); and, an output interdigital bandpass filter for further elimination of any channel 6 or aircraft communications signals from the CATV plant line, through the FM processing unit.

The IPA-FM22 also has a 0-9 db output level set control (linear pot) and a plug-in pad assembly for 0,3,6,9 and 12 db output padding.

Model IPA-FM 28/0 is a single channel (FM) low-noise pre-amplifier designed to produce maximum FM reception range by placing 28 db of gain at a typical 1.5 db noise figure right at the antenna. Other than the single channel FM specs, this unit is identical to the VHF (low band) TV pre-amp specs shown on page four.

Model IPA-FM 28BB/0 is a broad band (FM) low noise pre-amplifier for use in areas where all FM reception is from distant stations. The noise figure is 1.7 db average across the range 92-108 MHz and gain averages 28 db.

Model IS-BPF-FM is an indoor or outdoor FM only passband filter covering the frequency range 92-108 MHz. The interdigital filtering concept produces channel 6 aural carrier levels -30 db from the FM passband average levels.

This filtering unit is typically placed ahead of broad band FM signal processors to sharpen their skirt selectivity and to prevent any channel 6 information from leaking through onto the trunk system by way of the FM band broadband processor. Placed ahead of an FM pre-amplifier operating near a strong channel 6, it also eliminates pre-amp overload.

SPECS

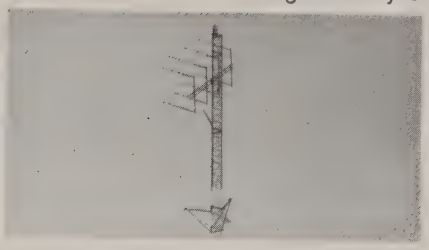
IPA-FM22
GAIN ..... 22/26 db
OUTPUT LEVEL CONTROL RANGE ...
(1) Linear control ... 0-11 db
(2) Plug-in pads ..... 0-12 db
NOISE FIGURE ..... 3.0 db
FREQUENCY BANDWIDTH ... 92-108 MHz
REJECTION ...Channel 6 aural, -34 db
MOUNTING ... 3.5 " high rack
POWERING ... 110/120 VAC, zener reg.
PRICING $295.00

IPA-FM28/0
GAIN ..... 28 db
NOISE FIGURE ..... 1.5 db
FREQUENCY RANGE ... Any single FM channel, 88.1 - 107.9 MHz
OUTPUT CAPABILITY ... +57 dbmv
MOUNTING ... Cast aluminum case, outdoor
POWERING ... Companion (included) 110-120 VAC zener regulated power supply for line powering
PRICING $215.00

IPA-FM28BB/0
Same as IPA-FM28/0 but broadbanded 92-108 MHz.
PRICING $235.00

IS-BPF-FM (filter)
See description in text; for tower leg or wall mounting (universal).
PRICING $105.00

CUSTOM ANTENNA SYSTEMS



Antenna systems must, on occasion, be designed to solve a particular receiving problem. Some of these problems are related to antenna pattern (co-channel being the most frequent pattern-problem) while others are related to forward gain.

CADCO is often called upon to design antenna receiving systems for customers building new head ends, or rebuilding old head ends.

SPECS

FREQUENCY RANGE ... Channels 2-83 + FM

ANTENNA TYPES UTILIZED ...

(1) Channels 2-6 + FM
- (A) Yagis
- (B) Logs
- (C) Rhombics
- (D) Quasi-Bolics

(2) Channels 7-13
- (A) Yagis
- (B) Logs
- (C) Rhomics
- (D) Quasi-Bolics
- (E) Parabolics

(3) Channels 14-83
- (A) Logs
- (B) Rhombics
- (C) Parabolics

FORWARD GAINS AVAILABLE ...

(1) Channels 2-6 + FM
- (A) 19.5 db over dipole

(2) Channels 7-13
- (A) 24.5 db over dipole

(3) Channels 14-83
- (A) 29.0 db over dipole

UN-WANTED DIRECTION NULLS AVAILABLE

(1) Channels 2-6 + FM
- (A) -34 db deepest null

(2) Channels 7-13
- (A) -42 db deepest null

(3) Channels 14-83
- (A) -37 db deepest null

The purpose of this page is to simply make you aware that CADCO has both the capability and the expertise to assist in designing your antenna receiving system(s). CADCO does not manufacture antennas. We buy from most of the major antenna suppliers to the industry, choosing the particular antenna that best suits the receiving problems the customer is experiencing.

These may be log antennas, or they may be yagis. Or, they may be parabolic dish antennas. In a couple of situations, rhombic antennas have been specified and installed.

One head end system now on the drawing boards consists of an array of 64 yagis on channel 11, stacked 8 yagis high by 8 yagis wide (640 elements in all). The same head end will also have a 16 bay channel 3 array, stacked two high by 8 wide (160 elements in all). SO ... large antenna arrays do not alarm us in any way.

Why come to CADCO for your antenna problems? Well, since we do not manufacture antennas, or favor any particular antenna brand, you can be sure that our specifications will be based solely upon expected performance.

Secondly, if CADCO designs and installs the antenna system, we will also guarantee its performance. If the array doesn't function as we said it would, you haven't bought it. So remember CADCO for antenna systems.

THE CATV PLANT

The CADCO approach to designing a new (or rebuild) CATV plant is, we believe, unique in the industry. First of all, we are very conscious of cost-per-mile.

Most CADCO plants can best be described as small. And small CATV plants usually have low housing density per mile. So the cost-per-home-passed, when the plant is first turned on, must be kept down well under $100.

CADCO electronics-per-mile typically runs around $600.00; it has even run as low as $510.00. Over all of the CADCO systems designed to date, it has averaged $589.00 per mile.

What are you getting for this kind of cost-per-mile in electronics?

You are getting 20 channel capable, 12 channel operational equipment with every state-of-the-art feature normally found in much more expensive equipment.

You are getting a totally modular design, so that in the event that this crazy industry of ours suddenly turns in another direction, the capability is there to plug new electronics into the existing housing.

You are also getting rugged design, heavy (but not outlandish) cast aluminum housings, and easy servicing if the need arises.

In the line extender area (CDC-4 unit) you are also getting two-way plug in capability; the CDC-4 has a built in return band filtering network.

But most of all, you are getting value for your dollar. Value that is predicated upon having a CATV plant that will faithfully reproduce your head end signals through mile after mile of trunk and distribution cable, day in and day out, without giving you problems. Value predicated upon reaching the maximum number of homes for the lowest cost per home in the industry today.

So whether your new (or rebuild) CATV plant is very small, small, or medium in size, there is extra value in it if it is a CADCO system. Find out why.

FOR SMALLER TOWNS

What about the small towns within the 35 mile zone of TV markets?

Is there any hope for these towns of 1,500, 3,000, or 7,500 that 1y frozen at this time?

Smallish towns, caught in the 35 mile net, are often too far from the core-city (ie. the center of the 35 mile center zone) to ever reasonably expect to be inter-connected to the core-city systems. Or, if they are to be inter-connected, it appears that it will happen many years down the road; after the core-city has had cable for some time.

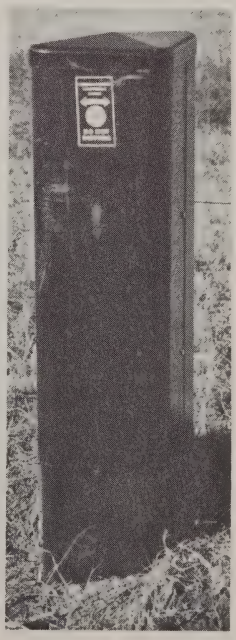
BUT ... these towns are now mired in the core-city requirements. 20 channel capable, often more than 12 channel operational. Two-way capable, and often operational.

And the cost of electronics for such towns, like the core-cities, runs to thousands of dollars per mile. It simply does not equate with homes passed per mile. Because a small city or town is a small city or town, with light densities per mile, regardless of where they happen to be. And that includes being within the 35 mile net.

So what is the hope for these communities?

CADCO recognizes the problem; perhaps more so than other equipment suppliers. CADCO is on record with the FCC Small System Inquiry as being in favor of lifting the carriage restrictions for these small communities so located in the 35 mile zones. (See TECH TALK, Vol. 2, No. 1)

At the same time CADCO is also working on a new system which would keep the cost of electronics per mile down in the $800. - $900. range, and still meet the 20 channel operational and two-way requirements of the FCC for these smaller within-35 zone situations. CADCO is best known as the **Small Town CATV Specialists.** And since we accept the obligation that this includes the within-35 zone small towns, we thought that you ought to know about our concern.



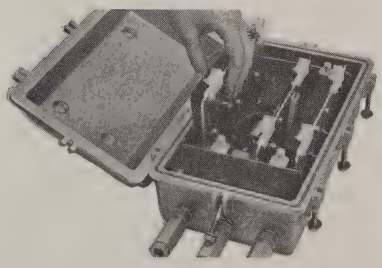
CDC-2 MAIN-LINE TRUNK

The basic CADCO approach to CATV system design is found throughout the CDC-2 trunk amplifier.

The trunk has good bandwidth (50-250 MHz), good output capability and good cascadeability. It is intended for smaller plants and trunk cascades not to exceed perhaps 32 units. In most CADCO plants, the trunk amp cascades run 10-12 units. So we feel that we are safely over-designed in this region.

SPECS

BANDWIDTH ... 50-250 MHz
RECOMMENDED OUTPUT ... +35 dbmv
CROSS MOD AT RATED OUTPUT ... -85 db
OPERATIONAL GAIN ... 25 db of cable at 216 MHz
MAXIMUM GAIN ... 28 db
MATCH ... 16 db rtl input/output min
RECOMMENDED INPUT ...
+13 dbmv low band
+10 dbmv high band
NOISE FIGURE ... 10 db
TILT CONTROL RANGE ... +3/-1 @ Ch. 2
TEST POINTS ... 0 db (probe supplied) at input and output
INPUT VOLTAGE SELECTION ... 20,35,45, 60 VAC
CURRENT DRAIN ... 250 mA
TEMPERATURE COMPENSATION ... Automatic for 24 db of cable,-40 to +140 degrees F



PRICING ... $375.00 each
DELIVERY ... 10 days to two weeks

The CDC-2 is a fully temperature compensated unit, with thermatic AGC built into every trunk amp.

There is also provision for power insertion at any trunk amplifier location.

The unit is roughly the size of larger manufacturer's line extender amplifiers, so it won't hang you up on pole space.

The CDC-2 is housed in a CADCO designed and produced cast aluminum housing. The housings are O ring sealed and rugged.

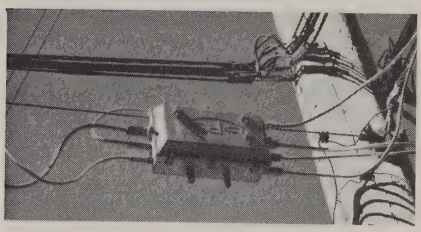
The interior electronics consists of a "mother board", attached to the bottom of the case, and separate plug in power supply and gain-rf boards.

The gain-rf board has a molded plastic dust cover, and the hinged top on the unit folds down so that you can easily set levels and service it from the side. A large record keeping label on the inside of the fold down cover makes a handy place to note levels in and out of the unit.

The input and output test points are accessible through "port holes" in the case top cover with a test point probe. So you can measure levels into and out of the unit without having to torque open the case itself.

It is a good, basic trunk unit for small systems that need to watch their capital plant outlays.

CDC-3 TRUNK / BRIDGER



The CDC-3 combination trunk and bridger amplifier combines the trunk amplifier features of the CDC-2 (described to the right on page 25) with good common sense features that most small system operators want in their bridged-output mainline amplifiers.

The CDC-3 includes all of the CDC-2 trunk portion features plus a plug in bridger board that works in conjunction with a plug in output splitter. The plug in splitter is available with one, two or four outputs.

Like the gain-rf board for the mainline trunk, the gain-rf board for the bridger has a dust cover over the electronics and easy-access adjustments for the gain and tilt controls.

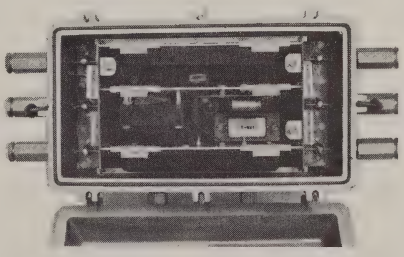
All of the bridged outputs are protected with plug-in circuit breakers. This makes line de-energizing a snap; simply pull out the breaker on the line in question. The breaker shuts off power on that leg in case of a short, waits a decent time interval, and then re-applies operating power to the line extenders on that leg. If there is still a short present, the breaker opens up again. A fair amount of extra care has gone into the breakers (CADCO manufactures them) to insure that high inside case temperatures do not false the breakers on and off.

The bridged-output test point is reached through a "port hole" that allows you to measure the level, with the probe supplied, without having to open up the case proper. And like the CDC-2 main line trunk amplifier described to the right, the CDC-3 combination trunk and bridger is housed in a CADCO designed and produced cast aluminum housing with an O ring seal.

The CDC-3 will accept any standard fittings, with 5/8 x 24 threads. The pricing of the CDC-3 (and the CDC-2 described to the right) is exclusive of connectors. Specifications shown below are for the bridger section.

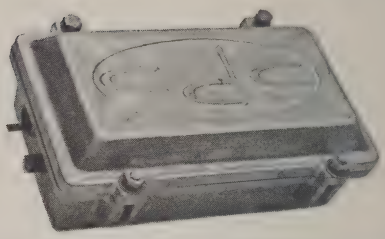
SPECS

BANDWIDTH ... 50-250 MHz
RECOMMENDED OUTPUT ... +41 dbmv (a)
CROSS MOD AT RATED OUTPUT ...-60 db
OPERATIONAL GAIN ... 12 db flat (*)
MAXIMUM GAIN ... 38 db (**)
MATCH ... 16 db rtl output
TILT CONTROL RANGE ... +1/-2 db @ channel 2
TEST POINT ... 0 db (probe supplied)
CURRENT DRAIN ... 500 mA (**)



(a - four bridged outputs)
(* - bridger module alone)
(** - bridger and trunk modules)
PRICING ... $475.00 each
DELIVERY ... 10 days to two weeks

CDC-4 Temp Compensated LINE EXTENDER



The CDC-4 line extender is designed expressly for the CATV operator who wants to save a buck. And not sacrifice picture quality.

There is nothing second-rate about the CDC-4. It is as state-of-the-art (ie. current and up to date) as a line extender can be. It is designed for the operator of any size system, but it is priced with the smaller operator in mind. Back to the cost-of-electronics per-mile thing again.

The cast aluminum housing is rugged and it fits comfortably into your hand (ie. it is not as big as a bread basket). The housing strand mounts and the top folds down for easy access.

The electronics is mounted on a push-in / pop-out module that goes in and out of the housing in just seconds. We mention this not because the CDC-4 is troublesome; quite the opposite is true. The fault rate during the past 1,000 units shipped was two units; or 0.2% of total production.

The CDC-4 carries a FULL one year full replacement warranty. If the unit fails for any reason, other than your own mis-use, we will replace it free of charge for one year.

The CDC-4 has a few features in it that are particularily noteworthy. One is the temperature-compensated AGC circuit. When the air temperature changes, the CDC-4 compensates for this change to balance the change in cable attenuation.

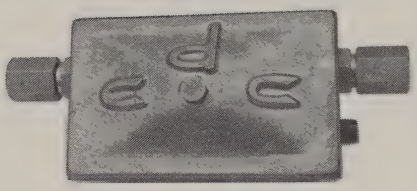
Another noteworthy point is the two way (return band) capabilities. Every CDC-4 has a built-in filter network and return-band amplifier plug. To change out an existing CDC-4 to two-way operation is as simple as plugging a two-way amplifier board. You may never use it (most won't), but it is there ... just in case.

The CDC-4 is your kind of line extender. Order a dozen today!

SPECS

GAIN ... 25 db
FREQUENCY RESPONSE ... 50-240 MHz
GAIN RESPONSE FLATNESS ... +/- 0.5 db
CABLE EQUALIZED FOR ... 10 db cable
TILT RANGE (ch. 2) ... -3/+4 db
NOISE FIGURE ... 11.0 db
INPUT/OUTPUT MATCH ... 16.0 db rtl
OUTPUT CAPABILITY ... +48 dbmv, 12 channels, for -57 dbmv cross mod
CROSS MOD ... -70 dbmv at +42 dbmv output
TEMPERATURE COMPENSATION ... automatic for 12 db of cable from -40 to + 140 degrees F
POWERING ... 30 VAC or 60 VAC
CURRENT DRAIN ... 175 mA at 30 VAC
CONNECTOR ACCEPTANCE ... any 5/8 x 24 threaded connector
TEST POINTS ... -20 db, +/- 1 db back matched
PLUG IN PADS ... 0,3,6,9,12 db
REVERSE BAND SPECTRUM ... 5-22 MHz with optional plug-in board
HOUSING ... cast aluminum, gasket sealed, two bolt enclosure
MOUNTING ... strand, two point
SERVICING ... fully modular,plug in
CONTROLS ... Gain (6 db range), tilt, power in/thru, plug in pads
OPERATIONAL OUTPUT ... 1 unit from bridger, +44 dbmv; 2 units in cascade,+42 dbmv; 4 units, +40 dbmv.
PRICING ... $135.00 each

CDC-5 economy LINE EXTENDER



CADCO developed the CDC-5 economy line extender for use in those situations where a line extender is needed at a point within 300-400 (.412) feet of a termination.

Why use a big high gain line extender, we reasoned, when only a short span of .412 was going to be energized?

SPECS

GAIN ... 13 db (10 of cable and 3 flat)
FREQUENCY RESPONSE ... 50 to 270 MHz
GAIN RESPONSE ... +/- 0.5 db
INPUT MATCH ... 16 db rtl
OUTPUT MATCH ... 16 db rtl
OUTPUT CAPABILITY ... +40 dbmv, 12 channels, at -57 dbmv cross mod
NOISE FIGURE ... 8.0 db
POWERING ... 30 vac
POWERING REGULATION ... Series regulated down to 20 VAC
CURRENT DRAIN ... 40 mA
CONNECTORS ... any 5/8 x 24 thread
TEST POINT ... -20 db at output
HOUSING ... cast aluminum, gasket sealed, single bolt enclosure, two-way strand mount
RECOMMENDED INPUT RANGES ... +8 dbmv to + 27 dbmv
RECOMMENDED OUTPUT RANGES ... +21 dbmv to + 40 dbmv
PRICING ... $45.00 each, single unit
DELIVERY ... routine off-the-shelf to 2 weeks
SHIPMENT VIA ... small orders via parcel post or UPS; larger orders via truck.

And so the CDC-5 was created. To save operators money.

The CDC-5 has a couple of wrinkles in it that other end of line extenders do not.

(1) High output capability ... + 40 dbmv output for 12 channels at - 57 dbmv cross mod.

(2) Wide range of inputs ...it will handle input levels from +8 dbmv to +27 dbmv without any noise or overload problems. This makes the unit very useful in a wide range of applications.

(3) Wide frequency range ... 50 to 270 MHz.

Most important of all, it lowers your cost of extensions for electronics to just a few bucks per new home added. The one unit price is $45.00 each.

When CADCO does a complete all inclusive layout for an all-CADCO plant, we specify the CDC-5 wherever we find a line extender required within 300-400 feet of a line termination point. In Medford, Oklahoma the savings in a plant 8 strand miles long was $123.75 per mile.

Finally, the CDC-5 has a very low noise figure; 8.0 db. This makes it an ideal unit to stick in on the trunk line where you have over-expanded or split one time to many and find your trunk levels at the input to a trunk amp are down below where they should be.

The CDC-5 deserves the serious consideration of every new CATV system designer; and old system adder-oner.

CDC-6 mid-span BRIDGER

So now you come to a situation where the plant layout dictates that you require a bridged output off of the trunk line; but your trunk line needs no additional amplification.

The answer is a plant amplifier called a **mid-span bridger.**

SPECS

BANDWIDTH ... 50 - 250 MHz
RECOMMENDED OUTPUT ... +41 dbmv for four bridged outputs
CROSS MOD AT RATED OUTPUT ... -60 db
MAXIMUM GAIN ... 28 db
MATCH ... 16 db rtl input/output
GAIN CONTROL ... 8 db of cable
SPACING ... 8-16 db of cable
PRICING ... $400.00

The CDC-6 mid-span (or intermediate) bridger can be placed at any point along the trunk where bridger outputs are required, from 8 db to 16 db of spacing after the last preceding trunk amplifier.

The CDC-6 is available with a single bridged output, two bridged outputs and four bridged outputs. As a bridger, it has the same operational and gain characteristics as a bridger-portion of the CDC-3 trunk/bridger combination; except as noted in the specifications to the left.

All bridged outputs have plug in circuit breakers and the housing is the same as the CDC2 or CDC-3 units.

WHO'S new at CADCO

CADCO is pleased to announce the appointment of **METRO CATV SUPPLY** as a stocking distributor for the region of Missouri, Iowa, Nebraska, Kansas and southern Illinois.

R.C. "Bob" Rhodes heads up the aggressive operation at Metro and his crew not only handles the full CADCO CATV line for this region; they are also actively engaged in the construction and management of CATV systems in the area.

Their address is 6016 Laurel, Raytown, Missouri 64133.

CADCO FIELD FACTS

Stan Wigh, Director of Field Engineering for CADCO, reports that construction is set to begin in June for another ALL CADCO system; in Coalgate, Oklahoma.

The system will have a 500 foot tower, CADCO designed and installed antenna arrays, and will be an all CADCO plant.

Wigh also reports all-CADCO head ends are scheduled for early July installation at Tylertown, Mississippi and Gonzales, Texas. Tylertown is a complete turn key with 300' tower.

IPS-2W/3W LINE SPLITTERS

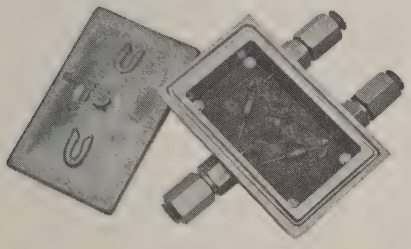
There is not very much that you can say about distribution line or trunk line splitters. They are passive, and passive CATV electronics is not a very exciting business.

Our IPS-2W two way splitters and our IPS-3W three way splitters are just about as exciting as an empty bottle of Coke.

SPECS

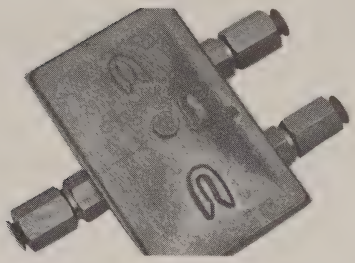
IPS-2W

THRU LOSS PER OUTPUT LEG ... 3.5 db
POWER PASSING CAPACITY ... 6 amps per leg
PORT-TO-PORT ISOLATION ... 20 db minimum
FREQUENCY RESPONSE ... 30-280 MHz
MATCH ... 18 db rtl
PRICE ... $14.50 each single unit



IPS-3W

THRU LOSS PER LEG ... 3.5 db one leg; 7.0 db two legs
POWER PASSING CAPACITY ... 6 amps per leg
PORT-TO-PORT ISOLATION ... 20 db minimum
FREQUENCY RESPONSE ... 30-280 MHz
MATCH ... 18 db rtl
PRICE ... $22.00 each single unit



Our IPS-2W and IPS-3W line splitters are housed in the same cast aluminum housings as our economy line extender; the CDC-5. This means it has that good cast aluminum case, with a single bolt enclosure, O ring seal and two-way mount for hanging on the strand in either of two directions (ie. fittings parallel to the strand or at right angles to the strand). If (and that is a big IF) there is anything noteworthy about the line splitters, it is the case they are housed in.

CADCO line extenders and line splitters look good hanging on the plant together; so if you are already using the CDC4 or 5 extenders, you might consider using the splitters just for the sake of appearance!

WHO'S NEW AT CADCO

Meet CHRIS REYNOLDS ... our new WATTS-LINE gal at CADCO. Chris will be calling you soon to talk about your system problems. If you need help before Chris calls, call her collect at any time.

CDC-1
AGC

SPECIALIZED PLANT EQUIPMENT

The CADCO CDC-1 trunk-AGC unit breaks with CATV industry tradition by making the AGC unit separate from the trunk amplifier itself.

There are two good (we feel) reasons for this approach.

(1) In the traditional AGC system, when the inputs drop below + 10 dbmv at the trunk unit input, the AGC compensates by adjusting the output of the trunk. In a typical 10 db noise figure trunk amplifier, the signal to noise ratio for the whole system to follow suffers because of the input dropping below +10 dbmv.

> You have probably noticed this on hot summer days on AGC'd plants; the daytime (hot) signal quality on the system is grainy, while the nighttime signal quality looks pretty fair.

In the CDC-1 "in-between" trunk AGC system, the input to the AGC unit would have to drop more than 15 db before any visible SNR degradation would take place.

(2) In the traditional trunk AGC system, the package is large and complex; and is needed every 2nd or 3rd amplifier.

In the CDC-1 system AGC units are employed every 5th amplifier. This works in conjunction with the CDC-2 or CDC-3 thermistor controlled (temperature compensated) AGC that is present in all CDC-2 and 3 units. In effect, this "in-between" AGC is sort of a mop-up AGC for long cascades. It will function nicely with other-than-CADCO plant systems also.

The AGC pilot carrier frequency is 73.5 MHz and 221.00 MHz. CADCO has our Model IPA-PCG-2 pilot carrier generator as a source for AGC reference signals for the CDC-1 unit (see page 31). The CDC-1 is an economical, state-of-the-art answer to plant AGC problems.

SPECS

INPUT ... + 25 dbmv at Ch. 13
OUTPUT ... + 25 dbmv at Ch. 13
AGC RANGE ... +/- 0.5 db for +/- 4 db input change
TILT RANGE ... +/- 0.5 db for +/- 4 db of cable
NOMINAL GAIN ... 0 db
MAXIMUM GAIN ... 4 db
MINIMUM GAIN ... 4 db of loss
PILOT CARRIER CONTROL FREQUENCY ...
73.5 MHz
221.0 MHz
NOISE FIGURE ... 10 db
CROSS MOD ... -85 dbmv
PRICING ... $325.00

WHAT'S NEW AT CADCO?

File this telephone number away for reference:

(405) 681 - 4233

This is CADCO's new TECH HOT LINE. If you have plant, antenna, head end or even FCC problems ... call for help. The first 3 minutes are on you; after that we call you back on our own nickle to help you out!

IPA
PCG-2
Pilot Carriers

SPECIALIZED CONTROL EQUIPMENT

The CADCO model IPA-PCG-2 pilot carrier generator was developed to provide 73.5 MHz and 221.0 MHz pilot carriers for use with the CDC-1 AGC system.

The IPA-PCG-2 is rack mounting (3.5 inches tall). It is available (standard) with the 73.5 MHz pilot; optionally with the 73.5 and 221.0 MHz pilot. The 221.0 could also be swapped out for 166.5 MHz (not recommended) or 225.0 MHz; to interface with existing pilot carrier systems now in the field.

SPECS

CARRIER FREQUENCIES ...
(1) 73.5 MHz (standard)
(2) 221.0 MHz (CADCO high band standard)
(3) 166.5 MHz
(4) 225.0 MHz
OUTPUT LEVEL ... +55 dbmv
SPURIOUS EMISSIONS ... -60 db
MANUAL OUTPUT LEVEL LINEAR CONTROL... 0-10 db
OUTPUT PLUG IN PADS ... 0,3,6,9,12 db
OUTPUT LEVEL METER ... 10 db range, +/- 0.5 db
OUTPUT LEVEL METERING SWITCH ...
(1) Select low band pilot
(2) Select high band pilot
PRICING ... $350.00

One of the unique features of the IPA-PCG-2 is that it has a built in calibrated output level meter. The meter reads either the low band pilot carrier or the high band pilot carrier to within +/- 0.5 db in a 10 db scale range.

This makes a very handy signal level meter calibration tool since the IPA-PCG-2 operates in a head end enviroment where temperature stability is quite good. By taking your plant FSM's to the head end and checking both the low band and the high band pilot carrier levels read against the built in meter on the IPA-PCG-2, you can calibrate or reference your FSM's for accurate and repeatable plant measurements.

The IPA-PCG-2 is all solid state, zener power supply regulated.

coming up

see cadco at _____

FCC REGIONAL MEETING COORDINATORS have been announced for the July 9, 11 and 13 meetings in Fargo, Omaha, and Oklahoma City.

Regional Meeting Coordinator for the Fargo July 9th meeting is Don Johnson, Lakeland Cablevision, P.O. Box 375, Detroit Lakes, Minnesota (56501). (218) 847-9208.

For Omaha on July 11th, Loyal Parks, TV Transmission,Inc., Box 81304, Lincoln, Nebraska (68501). (402) 477 - 0670.

For Oklahoma City on July 13th, Chuck Davis, Oklahoma CATV,Inc., P.O. Box 426, Lindsey, Oklahoma 73052. (405) 756-4341.

See inside back cover this TECH TALK for additional details.

CADCO CATV-OPERATOR PRICING SCHEDULE

Everything and everybody has a price. These are CADCO's prices. CADCO has one price; this published CATV-Operator/Equipment User price. In some instances quanity-discount prices are available to anyone who purchases CADCO equipment in quanity. These quanity-discounts are available on quotation. CADCO does not play the MSO Discount game. In addition to the quanity discount on some items, there is only one other discount available; the 7% cash-with-order discount. This is available to anyone ordering CADCO equipment with full payment (less the 7% discount) attached to the order.

CADCO PRODUCT NUMBER	USE	PRICE EACH
IPA-LB28/0	Single channel low band pre-amp	$235.00
IPA-HB28/0	Single channel high band pre-amp	$215.00
IPA-LB22/0	Single channel low band pre-amp	$195.00
IPA-UHF20/0	Single channel UHF pre-amp	$275.00
IPA-UHF22LN/0	Single channel UHF pre-amp	$395.00
IPA-PRS		$145.00
ISC-BPF-LB;HB	Single channel bandpass filter	$150.00
ISC-BPF-LB (HB)-T	Same, with aural carrier trap	$180.00
ISC-BPF-UHF	UHF bandpass filter	$150.00
IS-BPF-FM	FM bandpass filter	$105.00
IPA-STRIP	On channel signal processor	$480.00
IPA-STRIP, option 1	Same, with standby carrier	$585.00
IPA-(LB28/HB28)-AGC	AGC'd pre-amplifier	$360.00
IPA-FM28/0	Single channel FM pre-amp	$215.00
IPA-FM28BB/0	Broadband FM pre-amp	$235.00
IPA-FM22	FM broadband processor	$295.00
CEAS	Emergency Alert for IPA-STRIP	$1800.00
CEAS with INTERFACE SYNTHESIZER	Same, for other processors	$3000.00 (a)
CDC-1	Mainline AGC control unit	$325.00
CDC-2	Mainline amplifier	$375.00
CDC-3	Mainline amp + bridger	$475.00
CDC-4	Temp compensated extender	$135.00
CDC-5	Economy extender	$ 45.00
CDC-6	Intermediate bridger	$400.00
IPS-2W	two-way line splitter	$ 14.50
IPS-3W	three-way line splitter	$ 22.50
IPA-PCG-2	Pilot carrier generator	$350.00
IPA-AGC-C	AGC control for pre-amps	$175.00

(a - for 12 channel system. Pricing is $1800. for basic CEAS package plus $100.00 per channel for Interface Synthesizer. A 7 channel unit would be $1800.00 + $700.00.)

CADCO FIELD FACTS

CADCO is gradually building a solid network of stocking distributors throughout many areas of the United States. As time moves ever onward, we anticipate that additional distributors will be added. If you have a distributor in your area, patronize him whenever possible. If you do not have a CADCO distributor in your area, call CADCO directly at (405) 681-5377 for assistance.

DAVCO, INC. - Batesville, Arkansas; (501) 793-3816

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NELSON ELECTRIC, INC. - Dallas, Texas
(214) 741-6341

PATE ELECTRONICS, INC. - Tupelo, Ms.
(601) 842-2576

FRED WELSH ANTENNA SYSTEMS - Vancouver and Toronto

Vancouver - (604) 321-2621
Toronto - (416) 445-5650

FREE CADCO Literature Available

CADCO has several booklets available that anyone now in, or going into CATV should find informative reading.

There is no charge for these booklets; simply drop us a line or call requesting the publication that you wish.

(1) FINANCING THE SMALL CATV SYSTEM ... the honest facts about the 1973 CATV money market. This booklet tells you how to go about raising money to build a new CATV system or complex and what and where the pitfalls are.

(2) IPA-STRIP MANUAL ... This is the operational and set up manual for the famous CADCO IPA-STRIP on channel signal processor. In this manual you will find a short-course on head end design and processing problems; a handy tool even if you don't use IPA-STRIP units.

(3) IPA-AmpliFilter Manual ... is the operational manual for the world's best pre-amplifiers. Learn about noise figure, designing pre-amps and why and where you need a pre-amp here.

(4) ISC-BPF Manual ... is really a very detailed course in bandpass filter design techniques. If you want to learn more about why you use bandpass filters, and when, this manual is just the ticket for you.

All of these manuals are free. Address your request to CADCO, INC., P.O. Box 18904, OKC, Okla. 73118

APPLICATIONS FOR NEW STATIONS

Wausau, Wisconsin - An application has been filed with the FCC for a new ETV outlet on channel 20 here. Visual ERP would be 1202 kW and antenna height would be 987 feet.

Pittsburgh, Pennsylvania - An application has been filed for a new channel 22. Visual ERP would be 1503 kW and antenna height 966 feet.

CHANGES IN EXISTING STATIONS

Helena, Montana - An application has been filed by channel 12 to change visual ERP to 251 kW, transmitter location to Hogback Mountain, 22 miles NE of Helena. Antenna height will be 2250 feet above average terrain.

Wausau, Wisconsin - An application has been filed by channel 9 to change ERP to 316 kW and antenna height to 1210 feet.

Poplar Bluff, Missouri - A CP has been granted for an ERP change to 182kW visual for channel 15.

Jonesboro, Arkansas - An application has been filed by channel 8 to change ERP to 316 kW and antenna height above average terrain to 1665 feet.

Tuscaloosa, Alabama - An application has been filed by channel 33 to change ERP visual to 596 kW and antenna height above average terrain to 553 feet.

CHANGES IN TV CHANNEL ALLOCATIONS

San Bernadino/Riverside,Cal. - The FCC has proposed that channel 62 be assigned to this region. Comments on the proposal are due by June 28th.

East Lansing, Michigan - Existing ETV outlet on channel 23 here has requested that this non-educational-reserved channel be re-assigned for educational-only use. The channel is presently not ETV reserved. Comments are due by June 22nd.

Ithaca, New York - Channel 14 has been approved for deletion in Ithaca for ETV use; and channel 65 has been substituted by the FCC.

CABLE TV REPORT AND ORDER REPRINT AVAILABLE FROM GPO

The complete text of the FCC's Report and Order on Cable Television, adopted 2-03-72 and its action on reconsideration adopted 6-16-72 has been reprinted by the Government Printing Office.

This complete wrap-up on the entire FCC/Regulatory story vis-a-vis cable television is a must-have manual for everyone in CATV.

To order by mail:

(1) Send $2.10 to U.S. Government Printing Office

(2) Washington, D.C.

(3) and specify "Cable Television Report and Order and Reconsideration", stock number 0400-00276.

The FCC also advises, as does the U.S. Government Printing Office, that the Federal Register which previously had this information available, is no longer available. The supply has been exhausted.

. . . . . .

Is this FCC information useful? Drop TECH TALK a line and let us know!

REPORT

LITTLE ROCK MEETING BETWEEN FCC AND SMALL SYSTEM OPERATORS

It started in Little Rock ... on June the fourth. Sixty-one small CATV system operators demonstrated that there was nothing small about their thought processes as they drove home point after point to FCC Cable Bureau staffer Tony Cavendar.

Photographs express it best; and as we are a visual medium, we have selected a few of the most graphic for this report. Look closely at the facial expressions.

These are intent, concerned, sincere people. On both sides of the rostrom.

The entire five hour meeting was video taped through the courtesy of TeleMation's Tulsa office; for dubbing to a cassette to be shown at the CADCO NCTA Convention hospitality suite in Anaheim.

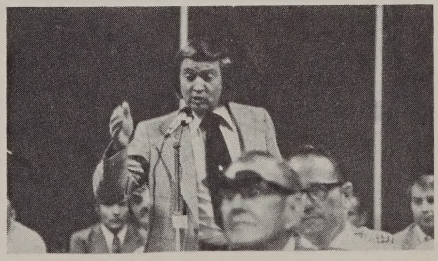
No subject was forgotten. Local municipal regulation, state regulation, and federal regulation.

Non-duplication and the 35 mile zone v.s. the Grade B non-dup zone was a prime topic. Arkansas operators in areas close to the state borders pointed out that they were required to black out Little Rock channels during prime time, to protect closer out of state stations. And yet, these out of state stations ignored their areas for severe weather warning information. And at the same time, storm warning data, carried throughout the evening on Little Rock stations did not reach their subscribers. Non-duplication was dangerous and a hazard to the protec-

A TYPICAL EXCHANGE

Kyle Moore, TV Cable Co, DeQueen,Ark. "...non-duplication in a small system results in inferior service..."

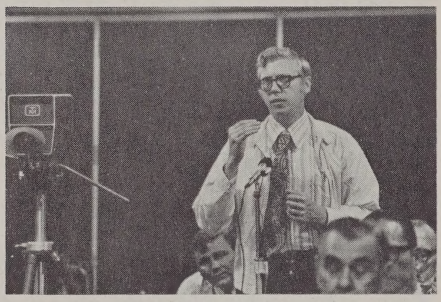
Tony Cavendar, Cable Bureau Attorney "...but can you substantiate that in a way that the Commission will agree.."

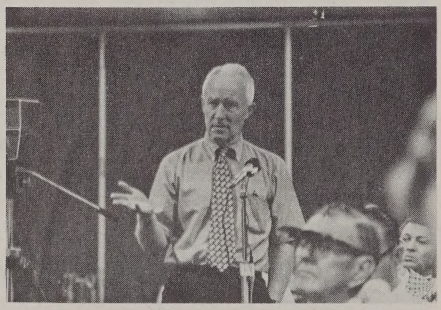


Moore "...come with me and visit a town nearly wiped out by a tornado because non-dup cut out storm warnings..."

tion of the people. Small system operators found it difficult to equate "in the public interest" with non-duplication protection switching.

SOMETIMES THE WORDS CAME HARD

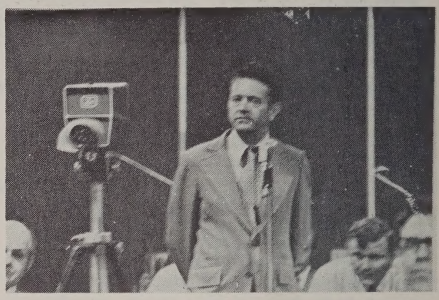




One operator with a 2,000 subscriber system pointed out his annual FCC fees for his CATV system was three times as much as his annual AM and FM radio station fees in the same town. And the radio stations served more than 50,000 people. "Is that fair" he wanted to know.

Cavendar responded "...this is the type of inputs we need. The Commission obviously needs more information from the operators. That is the purpose of these meetings".

One highlight of the meeting was the appearance out-of-retirement of CATV pioneer Jim Davidson. Jim hooked his first subscriber up in November 1948.



Among his questions to Cavendar was "...is this meeting and the others to follow a meaningless exercise? What will you do with what you have learned when you return to Washington?"

Cavendar assured him that a full report on all 12 meetings would be circulated throughout the Cable Bureau, and that just before he left Washington, he had received requests from two of the FCC Commissioners to report to them when he got back.

"If you (small operator) people will stay on top of us, you will get results" Cavendar noted.

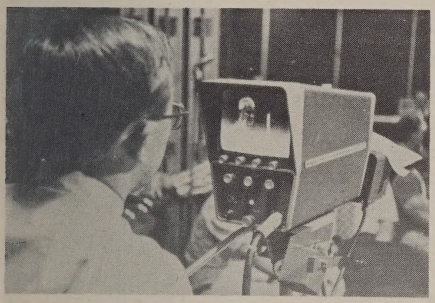
The principal thread running thru all of the questions from operators was the contention that small operators were still community antenna systems and not cable communication systems. And that the problems associated with running a 200/500/2000 subscriber community antenna system were only remotely related to the ramifications of Part 76 for what most operators believed were major market limitations.

Cavendar expressed his doubt that

the rules would ever be relaxed to the point that system operators could simply erect an antenna and carry anything they could pull in on that antenna.

That didn't satisfy the small operators in attendance.

However, if the FCC continues to regulate more and more of our activities, and we have to pay more and more for copyright, local, state and federal fees, the rates we charge will not be reasonable and the service we give will no longer be good.." .



Kyle Moore said it best. "..we are sick of being called parasites by the broadcasters and others. We are doing a good service for the broadcasters and the public, in these small towns. We are doing it for reasonable rates.

Everyone, and especially the FCC's Cavendar, agreed the meetings were the best thing to come down the pike since the FCC got into the cable act.

Onward to the next 9 meetings!

FCC REGIONAL MEETINGS
WITH SMALL CATV SYSTEM OPERATORS

MEETING NUMBER FOUR - CINCINNATI,OHIO ... June 25th, Holiday Inn South,11 AM
Call Bill Risden, Cumberland, Ky. at (606) 589-4731

MEETING NUMBER FIVE - HARRISBURG, PA. ... June 27th, Holiday-Inn-Town,11 AM
Call Carl Richards, Carlisle,Pa. at (717) 243-4918

MEETING NUMBER SIX - SYRACUSE,N.Y. ..... June 29th, Holiday Inn North,11 AM
Call Irv Toner, Warsaw, N.Y. at (716) 796-5638

MEETING NUMBER 7 - FARGO, N.D. ..... July 9th, Holiday Inn, 11 AM
Call Don Johnson at Detroit Lakes (218) 847-9208

MEETING NUMBER 8 - OMAHA, Nb ..... July 11th, Holiday Inn, 11 AM
Call Loyal Parks at Lincoln (402) 477-0670

MEETING NUMBER 9 - OKLAHOMA CITY,Ok... July 13th, Holiday Inn West, 11 AM
Call Chuck Davis at Lindsey (405) 756-4341

Meetings 10,11 and 12 will be in Boise (July 23), Spokane (July 25) and Portland (July 27). Meeting coordinators will be announced next month in TECH TALK. If you have any questions, call CADCO's Bill Smith at (405) 681-5377.

CADCO TECH TALK

TECH TALK is published from six to twelve times per year by the personnel at CADCO, INC. Distribution is FREE OF CHARGE to CATV operators, CATV system operating personnel and persons interested in the well being of the cable television industry.

CADCO, INC. manufactures a complete line of CATV system equipment including head end systems, and complete plants (turnkey or bill of material) for CATV systems serving towns of 10,000 and under population. Numerous new-system planning booklets and guides are available from CADCO; free for the asking.

Anyone wishing to be added to the TECH TALK mailing list should address their request to:

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